REMARKS

Introduction

The above amendments and these remarks are responsive to the Office action mailed on August 21, 2008. Claims 1, 5-12, 15-21, 25-32 and 35-40 are pending in the application, and are rejected in the Office action as obvious over a proposed combination of US6149490 to Hampton with US5619383 to Ngai. Additionally, a number of claims are rejected as being indefinite.

Applicants have studied the Office action and note that many of the prior rejections of the prior Office action (over a proposed combination of Hampton with US20060136544 of Atsmon) are reasserted in the present Office action, but substituting the secondary reference that is combined with Hampton; in particular, the Ngai reference is substituted for the Atsmon reference.

However, the Office action fails to address several remarks in Applicants' prior response showing that it would not be obvious to modify Hampton *with any reference*, as proposed in both Office actions. Where relevant, the remarks are reiterated herein.

In this response, claims 7, 12, and 40 are amended for clarity, as discussed below.

In view of the amendments above, and the remarks below, applicants respectfully request reconsideration of the application under 37 C.F.R. § 1.111 and allowance of the pending claims.

Rejections under 35 USC § 112

The Office action includes a number of rejections under 35 U.S.C. § 112, second paragraph, in which several claims are asserted to be indefinite.

For example, claims 7, 10, 18, 27, 30, and 38 all recite subject matter comparing frequencies of one range with frequencies of another. These claims are rejected on the assertion that it is "unclear in which dimension the ranges are being compared." Applicants disagree, and

note first that the claims do not compare the *ranges*. Rather, the claims compare the *frequencies* within the identified ranges. Second, the term "frequency" as used throughout the application clearly refers to EM frequencies (such as sound frequencies), which are typically measured in Hz, or cycles per second. As such, if x is a frequency, the term "twice the frequency of x" refers to a frequency of twice the cycles per second of x. Similarly, frequencies that are described to be "more than twice the frequencies" of those in an identified range (such as recited in claims 7 and 27, for example) thus indicates that such frequencies have more than twice the cycles per second compared with those in the identified range, and so forth. Moreover, similar terminology appears in claims of several issued patents (examples include US4024414 of Gurry, US5281825 of Berndt, US6032028 to Dickey, etc.), indicating that the USPTO has previously considered such terminology to be sufficiently clear under 35 U.S.C. § 112. Applicants thus believe that the wording in claims 7, 10, 18, 27, 30, and 38 are similarly sufficiently clear, and requests that the rejection of these claims be withdrawn.

Alternatively, if the Examiner has suggested wording for these claims, Applicants request that the Examiner contact the undersigned attorney of record in order to determine suitable wording that would avoid a rejection on this basis.

Claims 7 and 27 also are rejected based on the assertion that the limitation "the frequencies" in the phrase "in which the frequencies are more than twice" is unclear in terms of which frequencies are being referred to.

Applicants respectfully disagree. The claims recite, in part, "a third frequency range in which the frequencies are more than twice the frequencies of the second frequency range." The underlined term "the frequencies" clearly refers to the frequencies in the third frequency range. Applicants request that the rejection of claims 7 and 27 on this basis be withdrawn.

Claim 12 is amended herein to clarify that the term "and also including frequencies of normal human speech" further defines the recited third frequency range. As such, the claim is believed to be clear, and Applicants request that the rejection of the claim on this basis be withdrawn.

Claim 40 is rejected on a number of asserted grounds of indefiniteness.

First, the Office action asserts that there is insufficient antecedent basis for the terms "the filtered first sound signal" and "the filtered second sound signal." Applicant respectfully disagrees. A portion of the claim is reproduced below, in which these terms are underlined:

> filtering out of the first sound signal portions of the first sound signal representative of sound having frequencies above about 2 kHz;
> producing from the filtered first sound signal, a first control signal indicative of sound received in a second frequency range below about 2 kHz;
> filtering out of the second sound signal portions of the second sound signal representative of sound having frequencies below about 5 kHz;
> producing from the filtered second sound signal, a second control signal indicative of sound received in a third frequency range above about 5 kHz;

In context, it is clear that "the filtered first sound signal" in the "producing" step refers to the first sound signal after having been filtered in the prior "filtering" step. In other words, the first filtered sound signal refers to the first sound signal after filtering. The antecedent basis for the signal recited in the "producing" step is provided in the prior "filtering" step. Similarly, "the filtered second sound signal" in the "producing" step refers to the second sound signal after having been filtered in the prior "filtering" step, which provides antecedent basis. The antecedent basis rejection of this claim is thus believed to be overcome.

Second, the Office action objects to the wording "when the first control signal is produced" and "when the second control signal is produced," asserting that a prior step indicates that control signals are continuously produced, and asserting that the word "when" does not mean that an event happens in response to another event. Applicants note that the claim does not

include the word "continuously," and also notes that the word "when" may certainly indicate that an event happens in response to another event, if such meaning is clear from the context.

Regardless, claim 40 is amended herein to replace the wording "when the first/second control signal is produced" with "upon production of the first/second control signal."

All of the rejections under 35 U.S.C. § 112, second paragraph, are thus believed to be overcome.

Rejections under 35 USC § 103

The pending claims are rejected under 35 U.S.C. § 103 as being unpatentable over a proposed combination of Hampton with Ngai. Hampton discloses an interactive toy that gives responses to various stimuli such as handclaps and infrared signals, and Ngai discloses methods of writing to, and reading from, an audiotape, a composite signal consisting of audio signals and related data.

However, Applicants traverse the rejections for at least the reasons that (1) neither reference, either alone or in combination, discloses the subject matter of the pending claims, and (2) it would not have been obvious to combine the cited references.

Of the pending claims, claims 1, 12, 20, 21, 32, and 40 are independent. The following remarks address the rejections of each independent claim in order.

Independent Claim 1, and Dependent Claims 5-11

Caim 1 recites, in part, a sound detector adapted to (1) detect sound in at least two different frequency ranges, one of which is above normal human speech and the other of which includes frequencies of normal human speech, and to (2) reject frequencies in an upper range of normal human speech. Claim 1 also recites, in part, an output apparatus adapted to produce

corresponding sensible actions when sound is detected in each of the aforementioned frequency ranges.

1. The sound detector recited in claim 1.

The Office action asserts that Hampton discloses a signal detector that detects IR signals and sound signals in what Hampton describes as "microphone range," concedes that not all of the signals are disclosed in Hampton to be sound signals, and ignores the subject matter regarding rejecting upper human speech frequencies. The Office action also asserts that Ngai discloses a sound detector as recited in claim 1, based on the observation that Ngai filters out ultrasonic data signals, and also based on assertion that Fig. 3 of Ngai shows rejection of frequencies in a frequency range between first and second frequency ranges.

Applicants note that the subject matter disclosed in Hampton is quite different than that recited in claim 1. As demonstrated in Applicant's prior Amendment and Response of June 9, 2008, Hampton does not actually disclose the subject matter relied upon in the Office action in the first place.

For example, the Office action asserts that Hampton discloses detecting a frequency range that includes frequencies of normal human speech (Office action, page 4), but this assertion is unsupported. The Office action correctly identifies that Hampton uses an IR sensor, to detect IR signals, and a microphone, which is explained to detect clapping noises. These are two separate sensors, only one of which (the microphone) is adapted to detect sound (and thus can be considered a "sound detector"), and the sound that the microphone is adapted to detect is limited to "high frequency audible noises like clapping" (Hampton 20:20–21). Such audible noises are not disclosed to include frequencies of normal human speech, which cannot produce the full range of audible frequencies. Hampton nowhere discloses that the toy playthings are

responsive to, or can even detect, sound signals other than this range, or that this range includes frequencies of human speech.

Ngai fails to disclose the subject matter of claim 1. Ngai discloses filtering frequencies of an input signal that are above the upper end of the frequency range of human hearing (Ngai 5:65-67), also referred to as ultrasonic sound signals. The Office action construes this filtering of ultrasonic frequencies as *both* (1) detection of sound in a first frequency range above normal human speech, and (2) detection of sound in a second, different frequency range that includes frequencies of normal human speech.

However, this construction is incorrect. First, filtering any signals that fall outside of a certain range simply means preserving any signals *within* that range and simply ignoring any others, as opposed to *detecting* signals outside of the range; also, there may be no signals outside of a certain range to even be filtered out. Second, filtering out ultrasonic signals indicates that any preserved signals are within the range of human hearing; but again, *preserving* any such signals does not indicate that such signals are *detected*; for example, there may be no signals *within* the range. Third, even if the filtering disclosed in Ngai can be construed, for the sake of argument, as "detecting," there is no indication that any detection occurs in multiple ranges; rather, Ngai simply discloses preserving any and all non-ultrasonic signals, without regard to whether such signals are within or above the frequency range of normal human speech.

Ngai also fails to disclose the subject matter relied on in the Office action. For example, the Office action asserts that Fig. 3 of Ngai shows rejection of frequencies in a range between a first and second range. However, Ngai discloses a method for creating a composite signal that includes audio signals (such as a song track) and associated data (such as song lyrics), and recording a modulated version of the composite signal onto a magnetic tape. Fig. 3 represents

the frequency spectrum of the output modulated composite signal that is recorded, rather than indicating rejection of certain frequencies by a sound detector, as recited in claim 1. In particular, the band in the Fig. 3 graph between f_L and f_H represents the audio component of the signal that is recorded, and the three discrete f_{CR} frequencies represent the frequencies at which the data component may be recorded, depending on the extent of modulation (Ngai 5:22-36).

As such, Ngai fails to disclose a sound detector adapted to reject frequencies in a frequency range between a first and second frequency ranges, as asserted in the Office action.

The Office action addresses some of the aforementioned shortcomings. For example, the Office action concedes that Ngai fails to disclose that the rejected frequencies include frequencies of normal human speech, but asserts that such a modification would be an obvious design choice, such as if the delivered signal were not the full audible bandwidth and such frequencies were in the noise portion of the provided signal (Office action, page 5). The motivation asserted is to allow for maximum noise rejection.

In response to this, Applicants first note that the remarks above demonstrate that Ngai fails to disclose rejecting frequencies in the first place.

However, assuming for the sake of this response that Ngai *does* disclose rejecting frequencies between first and second frequency ranges, as asserted in the Office action, Applicants first note that the Office action fails to establish that "noise" is among the "frequencies in an upper range of normal human speech," as recited in claim 1. Second, the Office action fails to show how rejecting "noise" frequencies would or would not also reject some human speech frequencies. Furthermore, neither of the cited references address noise reduction, or even indicate that a signal filling the entire audible bandwidth is desirable (however, even if this statement is accurate, Applicants note that filtering out any audible

signals, such as "noise" frequencies, would, by definition, result in a signal that does *not* fill the entire audible bandwidth). In any case, Ngai discusses inputting a data signal and an audio signal into a write circuit to create a composite signal that is then recorded onto magnetic tape; and as such fails to disclose or even suggest that either signal be further processed such as to reduce noise. Rather, the whole of Ngai is directed to preserving *all* of the audible data in the audio signal and creating a composite signal in which the audio data forms a part. As such, Ngai teaches away from rejecting such frequencies. It would therefore *not* be obvious to modify Ngai to reject frequencies in an upper range of normal human speech, as recited in claim 1.

Because Hampton also fails to disclose a sound detector that is adapted, in part, to reject frequencies in an upper range of normal human speech, as recited in claim 1, no combination of the cited references discloses such a sound detector. As shown above and as previously demonstrated in Applicants' prior Response, it cannot be considered to have been obvious to modify either of the cited references to reach the sound detector recited in the claim. For at least this reason, claim 1 is clearly allowable over the cited references of record.

Additionally, the Office action also concedes, as noted above, that Hampton fails to disclose that the frequency ranges are sound signals, as recited in the claim. However, with respect to the IR signals in Hampton, the Office action asserts that it would be obvious to use the communication link of Ngai in the system of Hampton, "eliminating the need for IR transmitters and receivers, thereby reducing costs."

Applicants first note that the *identical* motivation was asserted in the prior Office action for combining Hampton with the signal communication technology disclosed in Atsmon.

Applicants have already demonstrated, in Applicants' prior Response, that the asserted motivation is improper. For example, there is no indication in either reference, nor is any

suggested in the Office action, that the alternative technology would be any less costly than that disclosed in unmodified configuration. To the contrary; the prior art Atsmon reference indicates that incorporating specialized signal-detection hardware of *any* nature (i.e., either ultrasonic, IR, RF, and so forth), is "expensive and/or problematic" (Atsmon, paragraph [0004]).

Regardless, Applicants have already demonstrated that Hampton teaches away from such a modification. The remarks addressing this point in Applicants' prior Response (on pages 17-18) are repeated herein for completeness:

> Hampton actually *teaches away* from incorporating ultrasonic signal detection or transmission hardware, such as that disclosed in Atsmon. The toy figure of the Hampton reference is configured to receive sound input from a child user via a microphone configured to detect clapping noises (Hampton 17:28–32; 20:18–21). Although the toy figure includes sensors to detect manual manipulation of the toy figure (26:4–37), or to receive IR signals from another such toy figure (17:24–27), there is no teaching, suggestion, or motivation to modify the toy figure to be responsive to, transmit, or even detect sound input that is outside of the sound frequency ranges that clapping noises, or general audible noise ranges, such as the ultrasonic signals disclosed in Atsmon. Also, there is simply no need, given that the technology in the Hampton reference is perfectly capable of receiving the types of input that it is intended to.
>
> Moreover, not only is there no indication that Hampton is even capable of detecting sound in a frequency range that includes frequencies of normal human speech and also rejecting some of those frequencies (i.e., those in an upper range of normal human speech), as recited in claim 1, but Hampton *teaches away* from incorporating any such technology. A significant portion of the Hampton reference discloses that the toy interacts with a child, and more particularly via inputs received from a child. Although clapping noises are the only sound signals that the Hampton toy is disclosed to detect, even if it would be obvious to modify Hampton to also detect sound signals in a frequency range that includes normal human speech, it would not be obvious to *further* modify the reference to *reject* frequencies in an upper range of normal human speech, as recited in claim 1. For example, such rejected frequencies may overlap with frequencies corresponding to clapping noises, which would be directly contrary to the disclosure of Hampton. As another example, children's voices usually register in higher frequencies than adult voices; thus, it would not be obvious to modify a toy that is designed to be responsive to input from a child to detect voice frequencies but reject an upper range of such voice frequencies.

Because Hampton itself teaches away from the modification urged in the Office action, these remarks are equally relevant with respect to the Ngai reference.

The above remarks demonstrate that the asserted combination of Hampton with Ngai fails to disclose at least the sound detector recited in claim 1. Additionally, the remarks above (as well as those previously submitted) demonstrate that the modification of Hampton with another reference cannot be considered to have been obvious; and on at least this basis the proposed combination of Hampton and Ngai is improper.

2. The output apparatus recited in claim 1.

The Office action asserts that Hampton prompts actions when signals in each range are detected (Ngai is not asserted to disclose an output apparatus as recited in the claim). Applicants preliminarily note that because (as demonstrated above) neither reference discloses or even suggests a sound detector adapted to detect sounds in two different frequency ranges, there is no disclosure or suggestion of an output apparatus producing corresponding sensible actions when sound is detected in either range.

Also, Applicants have already demonstrated, in Applicants' prior Response, that this assertion is incorrect. The remarks addressing this point in Applicants' prior Response (on pages 15-16) are repeated herein for completeness:

> To illustrate additional subject matter in the rejected claim that is not disclosed in either reference, there is also no indication in either reference that detection of signals in different sound frequency ranges prompts the production of corresponding sensible actions, as recited in claim 1. Rather, the output actions of the Hampton toy figure are determined either by the activity being played (Hampton 24:56–28:50) or by the *type* of signal being detected (*i.e.* via IR, audible clapping sounds, and so forth), rather than the range of sound frequencies in which a sound is detected. Similarly, the output actions or signals of the Atsmon system are not disclosed to correspond to the sound frequency range in which a sound is detected, as recited in claim 1.

As such, the cited references, either alone or in combination, fail to disclose at least the output apparatus recited in claim 1.

3. Claims depending from claim 1.

The above remarks demonstrate that the cited references either fail to disclose the subject matter they are asserted in the Office action to disclose, and/or fail to disclose the subject matter recited in at least claim 1. Further, even if the proposed combination of Hampton with Ngai disclosed each and every element of claim 1, the combination is an improper one to make, as shown above (and even if proper, the remarks herein demonstrate that the combination fails to disclose all of the subject matter of independent claim 1). For at least the aforementioned reasons, the rejection of claim 1 is improper and should be withdrawn.

Accordingly, claims 5-11, which depend from claim 1, should also be allowed for at least the same reasons.

However, dependent claims 5-11 recite additional subject matter to independent claim 1. The Office action asserts, with respect to claims 5, 6, 8, and 9, however, that "the combination of Hampton and Ngai teach that two distinct frequency ranges can be used to create two communication channels and that sound signals may be used for both."

Applicants note that the exact wording, with the substitution of Ngai for Atsmon, was used in the prior Office action. As with the prior Office action, the present Office action fails to identify where or how the cited references disclose or suggest that sound may be detected in multiple sound frequency ranges, much less detect certain frequencies of human speech and reject others, as recited in independent claim 1. In other words, the assertion is made completely without support, as is the asserted motivation, as is the case in the prior Office action, and indeed, neither reference discloses the use of "two distinct frequency ranges to create two

communication channels and that sound signals may be used for both" as asserted in the Office action. Moreover, as shown above, Hampton teaches away from the proposed combination.

For at least the additional reason that the rejection is unsupported, the rejection is improper and should be withdrawn.

Furthermore, several of the dependent claims recite specific frequency ranges. With the exception of the rejections of such claims under 35 U.S.C. § 112, the Office action is silent with regard to this subject matter, providing additional reasons that the claims are allowable.

Independent Claim 12, and Dependent Claims 15-19

Claim 12 recites, in part, a sound detector adapted to (1) detect sound in at least two different frequency ranges, one of which is above normal human speech and the other of which includes frequencies of normal human speech, and to (2) reject frequencies in third frequency range that also includes frequencies of normal human speech and that is between the first and second ranges. Claim 12 as amended also recites, in part, an output apparatus adapted to produce a corresponding sensible action when sound is determined to be in either of first and second frequency ranges.

In the Office action, the rejection of claim 12 is substantially identical to the rejection of claim 1. However, as shown above, neither of the cited references, either alone or in combination, discloses a sound detector adapted to detect sound in two different frequency ranges and reject frequencies between the different frequency ranges, such as the sound detectors recited in both claims 1 and claim 12, without regard to the specific frequency ranges including frequencies corresponding to those within and/or above those of normal human speech. Thus, the remarks above with respect to claim 1 also demonstrate that the cited references fail to disclose the particular sound detector recited in independent claim 12, and are reiterated herein.

With respect to the output apparatus recited in independent claim 12, Applicants note that, as indicated above, because neither reference discloses or even suggests a sound detector adapted to detect sounds in two separate frequency ranges, there is no disclosure or suggestion of an output apparatus producing a corresponding sensible action when sound is detected in either range.

Turning to dependent claims 15-19, the Office action asserts, with respect to claims 15-17, that "the combination of Hampton and Ngai teach that two distinct frequency ranges can be used to create two communication channels and that sound signals may be used for both." As noted above, this assertion is given completely without support, as was the case in the prior Office action. The rejection is therefore improper and should be withdrawn. Furthermore, claims 15-19 recite additional subject matter, such as, for example, specific frequency ranges, which are ignored in the Office action. However, because the proposed combination fails to disclose or make obvious the subject matter of independent claim 12, from which these claims depend, and in light of the above remarks indicating that the proposed combination cannot be considered an obvious one to make, claims 15-19 are clearly allowable.

Independent Claim 20

Independent claim 20 is amended herein recites, in part, a sound receiver adapted to receive sounds in a specific frequency range, and at least two sound analyzers adapted to produce signals when sounds in two frequency ranges, respectively, within the specific frequency range, are received.

The Office action on pages 9-10 rejects independent claim 20 by repeating the prior language asserting that Hampton discloses all of the subject matter with the exception of "wherein all of the ranges are sound signals," and then asserting that Ngai discloses two sound

analyzers that produce sound control signals as recited in the claim. However, the Office action cites the same component in Ngai (high pass filter 44) as the first and second sound analyzer, and fails to cite any support for the assertion that this component actually can be construed as the sound analyzers recited in the claim. For example, the claimed sound analyzers produce control signals indicative of sounds received in different frequency ranges, which the high pass filter 44 does not do. In contrast, high pass filter 44 is limited to "[filtering] out frequencies below a predetermined cutoff frequency that is above the upper end of the range of human hearing" (Ngai 5:65-67). Because Ngai discloses that "human hearing range is typically in the range of 20 Hz to 20 kHz" (Ngai 5:4-5), and because at least one of the frequency ranges recited in claim 20 is within this range, the high pass filter 44 filters out, rather than receives, frequencies in at least one of the claimed ranges–and thus cannot be construed as the sound analyzers recited in the claim.

As noted above, the Office action conflates "filtering" of frequencies in the Ngai reference as "receiving" and/or "rejecting" frequencies. As indicated above, the terms are certainly not synonymous. The motivation asserted in the Office action to modify Ngai to filter different frequency ranges "to allow for maximum noise reduction" is also improper, as addressed above. The shortcomings of Hampton to disclose the subject matter recited in claim 20 is also demonstrated above, as is the impropriety of the asserted motivation in the Office action to "use the communication link of Ngai in the system of Hampton."

For at least the aforementioned reasons, the rejection of claim 20 is improper and should be withdrawn.

Independent Claim 21, and Dependent Claims 25-31

Independent claim 21 is a method claim that recites, in part, detecting sounds in at least two different frequency ranges, one of which is above normal human speech and the other of which includes frequencies of normal human speech, and rejecting frequencies in an upper range of normal human speech. Applicants note that these method steps are analogous to the functions performed by the sound detector of claim 1. Independent claim 21 also recites, in part, producing corresponding sensible actions when sound is detected in each of the aforementioned frequency ranges. These method steps are analogous to the functions performed by the output apparatus of claim 1.

The rejection of claim 21 in the Office action uses the same wording, cites the same components and sections of the cited references, and asserts the same reasoning as the rejection of claim 1. Because the rejection focuses on the functionality of the components of claim 1, and because the functionality is analogous to the method steps recited in claim 21, Applicants traverse the rejection on the same basis and submit that the entirety of the remarks presented above with respect to claim 1 are equally applicable to claim 21, and therefore reiterate those remarks herein with respect to claim 21. Accordingly, the rejection of independent claim 21 is believed to be overcome for at least the same reasons as applied to independent claim 1.

Moreover, the subject matter of the additional method steps recited in dependent claims 25-31 are analogous to the functional aspects of the additional subject matter recited in the claims that depend from claim 1. Applicant notes that these dependent claims are rejected in the Office action on exactly the same grounds as the claims that depend from claim 1, and again submit that the remarks presented above with respect to dependent claims 5-11 are equally applicable to dependent claim 25-31, and therefore reiterate those remarks herein with respect to

claim 25-31. Accordingly, the rejection of dependent claims 25-31 is believed to be overcome for at least the same reasons as applied to dependent claims 5-11.

Independent Claims 32 and 40, and Dependent Claims 35-39

In a manner similar to independent method claim 21, independent method claims 32 and 40 (and dependent method claims 35-39) recite method steps analogous to the recited functionality of the components of independent claims 12 and 20 (and dependent claims 15-19), respectively.

The Office action rejects these independent method claims in a substantially identical manner as it does independent claims 12 and 20 (and dependent claims 15-19).

Applicants accordingly traverse the rejections of method claims 32 and 35-40 on the same basis and submit that the entirety of the remarks presented above with respect to claims 12 and 15-20, respectively, are equally applicable to the aforementioned method claims, and therefore reiterate those remarks herein with respect to these method claims. Accordingly, the rejections of method claims 32 and 35-40 are believed to be overcome for at least the same reasons as applied to claims 12 and 15-20.

Conclusion

Applicants believe that this application is now in condition for allowance, in view of the above amendments and remarks. Accordingly, Applicants respectfully request that the Examiner withdraw all rejections and issue a Notice of Allowance covering the pending claims. If there are any questions, or if a telephone interview would in any way advance prosecution of the application, the Examiner is invited to contact the undersigned attorney of record.

CERTIFICATE OF E-FILING

I hereby certify that this correspondence is being transmitted electronically via the United States Patent and Trademark Office's EFS-Web System on January 21, 2009.

Allison M. Deverman Vietor

Respectfully submitted,

KOLISCH HARTWELL, P.C.

Timothy M. Whalen
Registration No. 58,467
Customer No. 23581
Attorney for Applicant(s)/Assignee
520 S.W. Yamhill Street, Suite 200
Portland, Oregon 97204
Telephone: (503) 224-6655
Facsimile: (503) 295-6679